



Remote Sensing Applications Division (RSAD)

CDR Program Office

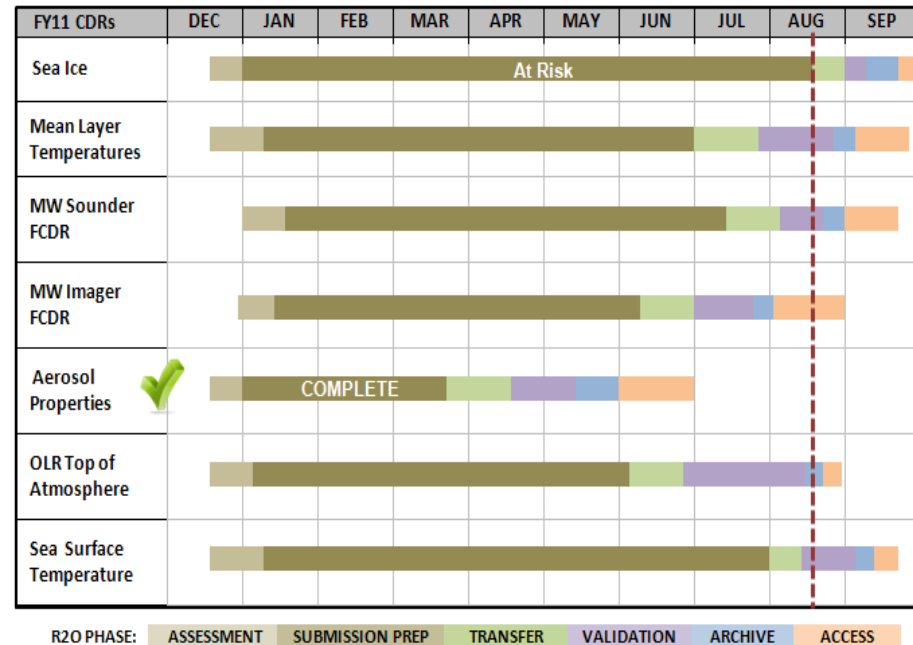
Weekly Report for Aug 12, 2011
John J Bates, Chief

CDR Program Office

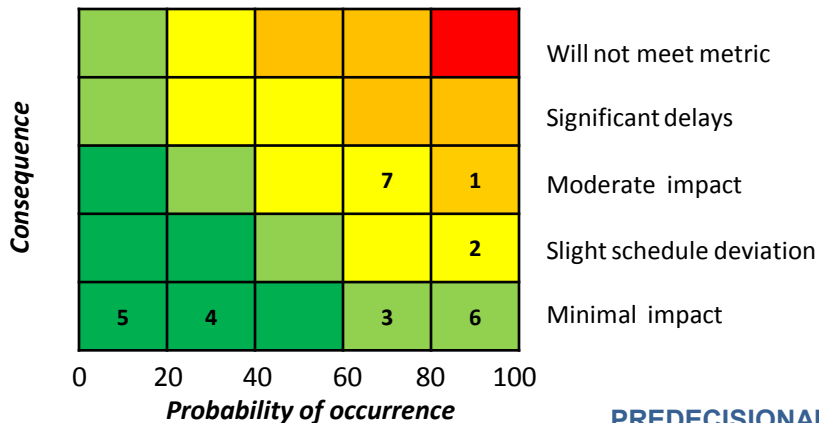
FY11 Climate Data Records

Weekly Report –Aug 12, 2011

- **① Sea Ice**
 - Met with developer – may have problem serving data by 9/30
 - ↓ **② Mean Layer Temperatures**
 - Contract in place with PI, still an issue with CATBD production
 - **③ Microwave (MW) Sounder FCDR**
 - PI will make final delivery next week
 - **④ Microwave (MW) Imager FCDR**
 - Final Access piece on one week delay
 - **⑤ Aerosol Properties**
 - CDR is available for public access – Completed June 16
 - **⑥ Outgoing Longwave (LW) - Top of Atmosphere**
 - Additional metadata changes requested by Archive
 - ↑ **⑦ Sea Surface Temperature**
 - CICS Contract approval moving slowly
- No change ↑ Increasing Risk ↓ Decreasing Risk



Risk Matrix



Risk and Mitigation

Sea Ice

- Met with developer – weekly IPT telecon with all parties involved

Mean Layer Temps

- Daily Schedule developed – contract in place for documentation delivery

Sea Surface Temp

- NCDC/NODC SLA – signed by NODC
- CICS contract moving slowly – Janice filed for pre-award option

PREDECISIONAL DRAFT INFORMATION

Sea Ice

CDR Product: TCDR - Sea ice concentration, 1979-2010 (20 GB)

GEOSS Societal Benefit: Climate, Water, Ecosystems, Agriculture

Project Status

- **Met with Developer at CDR meeting – reviewed schedule**
 - **draft CATBD and code will be sent next week**
 - **she said they may not be able to host data by Sep 30**
 - **we will host the data if they can't as a backup plan**
- **Set up weekly IPT telecon with PI, developer, and NCDC team**
- SA draft sent to PI for review – PI sent responses back
- Jeff went over schedule with PI on June 30 during NCDC visit
- SLA draft was given to PI at the meeting on June 30 – on hold
- Sample NetCDF files, a list of global attributes, and sample CDR code reviewed; Comments and suggestions provided to PI

Next Action / Milestone

- **PI deliver inputs on SA (7/18) - done**
- PI deliver completed sample Files, Draft CATBD, Partial code (8/15)
- TM return comments on sample files, CATBD, and code (8/19)



Project Risks

- Schedule for NSIDC product and NCDC R2O team is very tight
 - Developed detailed schedule to help prevent any further slips
- NSIDC will be serving the data to the public – IT hurdles for them
- PI does not have much control over the center-wide dev schedule
- The codes that will be delivered are pieces of the NSIDC operational system

ID	Task Name	Status	Start	Stop	FY11 Q1			FY11 Q2			FY11 Q3			FY11 Q4		
					Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	Initial Assessment	100	12/7/2010	1/7/2011												
2	Transfer Prep	50	1/7/2011	8/15/2011												
2a	Comment Source Code	50	4/15/2011	8/15/2011												
2b	Create Docs (CATBD, Flow Chart, MM, Readme)	50	1/7/2011	8/15/2011												
2c	Convert data from binary to NetCDF	50	3/1/2011	8/15/2011												
3	Transfer Code, Docs, and Data	0	7/15/2011	8/31/2011												
4	Verify Code, Docs, and Data	0	7/31/2011	9/7/2011												
5	Archive Code, Docs, and Data	0	8/15/2011	9/21/2011												
6	Provide Access to Code, Docs, and Data	0	9/1/2011	9/30/2011												

Mean Layer Temperatures

CDR Product: TCDR - Monthly gridded anomalies for three layers (LT, MT, LS), 1978-2010 (60 GB)

GEOSS Societal Benefit: Energy, Climate, Ecosystems

Project Status

- SS contract has been approved at NCDC and sent to PI
 - PI sent a lot of documentation, but is reluctant about CATBD
- PI and team have sent source codes, flow chart, and MM
- Pulled all ASCII files from PIs ftp site - checksums didn't match
 - UAH recreating checksums and restaging data files
 - Mike Urzen ready to run NetCDF conversion once archived

Next Action / Milestone

- Archive ASCII files (7/26)
- PI Deliver Draft CATBD (7/29) – Roy Spencer will create first draft
- Convert to netCDF (8/12)



Project Risks

- Data is ASCII format – Mike Urzen will convert to NetCDF
- PI has limited resources for documentation – contract in place

ID	Task Name	Status	Start	Stop	FY11 Q2			FY11 Q3			FY11 Q4		
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	Initial Assessment	100	1/1/2011	1/15/2011									
2	Transfer Prep	75	1/15/2011	8/5/2011									
2a	Comment Source Code	100	1/15/2011	7/29/2011									
2b	Create Docs (CATBD, Flow Chart, MM, Readme)	75	3/15/2011	8/5/2011									
2c	Convert from ASCII to NetCDF	50	4/30/2011	8/1/2011									
3	Transfer Code, Docs, and Data	50	6/21/2011	8/5/2011									
4	Verify Code, Docs, and Data	50	7/15/2011	8/21/2011									
5	Archive Code, Docs, and Data	0	8/7/2011	9/7/2011									
6	Provide Access to Code, Docs, and Data	0	9/1/2011	9/21/2011									

PREDECISIONAL DRAFT INFORMATION

Microwave Sounder FCDR

CDR Product: FCDR - AMSU-A Brightness Temperature, CH 9; 2001 - 2010 (100 GB)

GEOSS Societal Benefit: Climate, Water, Ecosystems

Project Status

- Had PI here during CDR conference
 - PI plans to send everything by next week
 - PI discussed Fair Use Clause and NCAR copyright during CDR conference
- Received final version of code and readme
- Sent SA to PI
- CDRP Decision was made, after telecon with PI, to proceed with CH9 only - the risk of CH7 not meeting IOC CDR requirements was too high

Next Action / Milestone

- PI deliver Flow Chart and MM (7/27) – 50%
- PI deliver final netCDF files (8/1) - done



Project Risks

- PI concerned about his source code being widely available
 - PI would like to be the one to distribute it
 - **Need to finalize policy on source code release**

ID	Task Name	Status	Start	Stop	FY11 Q2			FY11 Q3			FY11 Q4		
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	Initial Assessment	100	1/1/2011	1/15/2011									
2	Transfer Prep	90	1/15/2011	7/28/2011									
2a	Comment Source Code	100	1/15/2011	7/28/2011									
2b	Create Docs (CATBD, Flow Chart, MM, Readme)	90	3/15/2011	7/28/2011									
2c	Format Data for delivery	100	4/30/2011	7/28/2011									
3	Transfer Code, Docs, and Data	75	6/1/2011	8/8/2011									
4	Verify Code, Docs, and Data	75	7/1/2011	8/15/2011									
5	Archive Code, Docs, and Data	0	8/1/2011	9/8/2011									
6	Provide Access to Code, Docs, and Data	0	9/1/2011	9/21/2011									

PREDECISIONAL DRAFT INFORMATION

Microwave Imager FCDR

CDR Product: FCDR - Intercalibrated SSM/I Brightness Temperatures (V6), 1987 – 2010 (1720 GB)

GEOSS Societal Benefit: Climate, Water, Ecosystems

Project Status

- **Problems with archive tape drive has slowed Access branch from getting complete dataset on THREDDS**
- **Steve's wife had a baby so progress temp slowed**
- Data, source code, and doc packages are archived
- Sent sample files to Access for initial evaluation
- TM completed FCDR data production on local server
- TM completed CATBD
- TM completed README file
- Completed source code comments and created source code header document with robodoc
- Submitted all documents and code into Subversion repository

Next Action / Milestone

- Get data on THREDDS – 50%
- Update CDR web page



Project Risks

- Minimal risk involved

ID	Task Name	Status	Start	Stop	FY11 Q2			FY11 Q3			FY11 Q4		
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	Initial Assessment	100	1/1/2011	1/15/2011									
2	Transfer Prep	100	1/1/2011	7/21/2011									
2a	Comment Source Code	100	1/1/2011	3/31/2011									
2b	Create Docs (CATBD, Flow Chart, MM, Readme)	100	1/1/2011	7/21/2011									
2c	Format data from binary to NetCDF	100	2/1/2011	4/30/2011									
3	Transfer Code, Docs, and Data	100	5/21/2011	7/29/2011									
4	Verify Code, Docs, and Data	100	6/15/2011	8/5/2011									
5	Archive Code, Docs, and Data	100	7/8/2011	8/15/2011									
6	Provide Access to Code, Docs, and Data	25	8/1/2011	8/31/2011									

Aerosol Properties

CDR Product: TCDR - Aerosol Optical Thickness (AOT), 1981 – 2010 (430 GB)

GEOSS Societal Benefit: Disasters, Health, Climate, Ecosystems

Project Status

- CDR is publicly available on the CDR web site
– Completed June 16

Next Action / Milestone

- None



Project Risks

- None

ID	Task Name	Status	Start	Stop	FY11 Q1			FY11 Q2			FY11 Q3			FY11 Q4		
					Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	Initial Assessment	100	11/29/10													
2	Transfer Prep	100	1/1/2011													
2a	Comment Source Code	100	1/1/2011													
2b	Create Docs (CATBD, Flow Chart, MM, Readme)	100	1/1/2011													
2c	Subset CDR variables	100	2/1/2011													
2d	Format data from HDF to NetCDF	100	2/15/2011													
3	Transfer Code, Docs, and Data	100	3/21/2011													
4	Verify Code, Docs, and Data	100	4/15/2011													
5	Archive Code, Docs, and Data	100	5/8/2011													
6	Provide Access to Code, Docs, and Data	100	6/1/2011													

COMPLETE

PREDECISIONAL DRAFT INFORMATION

Outgoing Longwave Radiation - Top of Atmosphere

CDR Product: FCDR - HIRS OLR Time Series, monthly mean, 2.5 deg, 1979 – 2010 (20 MB)

GEOSS Societal Benefit: Energy, Climate, Ecosystems

Project Status

- **Sent final SA to PI**
- PI received comments from Jason and Bill on netCDF attributes, and updated the attributes in his data file.
 - **Additional metadata comments from Phil and Jim were added**
 - **Final data file with appropriate metadata expected 8/15**
- All parts will be ready for archive next week
- Received source code with README
 - completed Security Review, created Header Document
- Received ATBD, Flow Chart, and MM

Next Action / Milestone

- **Receive final data file from PI (8/5)**
- **Archive source code, documentation and data packages (8/8)**
- Get data on THREDDS (8/14)
- Provide web access to CDR (8/15)



Project Risks

- Minimal risk involved

ID	Task Name	Status	Start	Stop	FY11 Q1			FY11 Q2			FY11 Q3			FY11 Q4		
					Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	Initial Assessment	100	11/29/2010	12/15/2010												
2	Transfer Prep	95	12/15/2011	7/22/2011												
2a	Comment Source Code	100	12/15/2011	3/31/2011												
2b	Create Docs (CATBD, Flow Chart, MM, Readme)	100	1/1/2011	4/30/2011												
2c	Format data for delivery	90	3/1/2011	7/22/2011												
3	Transfer Code, Docs, and Data	90	4/1/2011	7/22/2011												
4	Verify Code, Docs, and Data	75	5/1/2011	7/30/2011												
5	Archive Code, Docs, and Data	0	6/1/2011	8/8/2011												
6	Provide Access to Code, Docs, and Data	0	7/1/2011	8/15/2011												

PREDECISIONAL DRAFT INFORMATION

Sea Surface Temperature

CDR Product: TCDR - Pathfinder v5.2, Daily nighttime and daytime global SST fields, 1981-2010, (4000 GB)

GEOSS Societal Benefit: Climate, Water, Ecosystems, Agriculture

Project Status

- SLA/SA signed by NODC
 - NODC will give NCDC a copy of data and put it on line nlt 8/31
 - **NODC found error in header info, will have to fix & reprocess**
- Documentation hire with CICS, official start date was 1 July
 - **Kay has not received contract yet and won't deliver CATBD or other documentation until she sees it**
 - **Janice said contract has made some progress**
 - **Janice has started pre-award option for Kay**
- Separate SA needed for deliveries from Bob and Kay (UofM/CICS)
- Working on standard SA for the other parts of the CDR

Next Actions / Milestone

- **Sign NODC SLA/SA (7/22) – done**
- Create SA for code/documentation (8/9)
- PI Deliver: Draft CATBD (8/15)
- NODC create complete set of netCDF data files (8/31)
- NODC deliver a copy of netCDF Data Files to NCDC as in SA (8/31)
- Archive complete CDR netCDF dataset (8/31)



Project Risks

- Processing from level 1b to HDF has been accomplished for all sats but header info was missing – looking into how to fix
- Documentation is via CICS consultant – work has started
- Final SST data set will be served by NODC

ID	Task Name	Status	Start	Stop	FY11 Q1			FY11 Q2			FY11 Q3			FY11 Q4		
					Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	Initial Assessment	100	11/29/10	12/15/10												
2	Create HDF product (v5.2) 1981-2010 (UoM)	100	12/15/10	5/21/11				N18	N16	N7	N9	N11	N14			
3	Convert HDF to netCDF (NODC)	75	2/1/11	8/31/11												
4	Comment Source Code	20	2/15/11	8/31/11					NODC			CICS Hire				
5	Create Documents	10	2/15/11	8/31/11					NODC			CICS Hire				
6	Transfer Copy of Data, Code and Docs	5	5/1/11	8/31/11								Data		C&D		
7	Verify Data, Code and Docs	5	6/1/11	9/7/11									Data		C&D	
8	Archive Data, Code and Docs	0	7/1/11	9/15/11										Data	C&D	
9	Provide Access to Data, Code and Docs	0	8/1/11	9/21/11												
	(Point to Data served at NODC)															

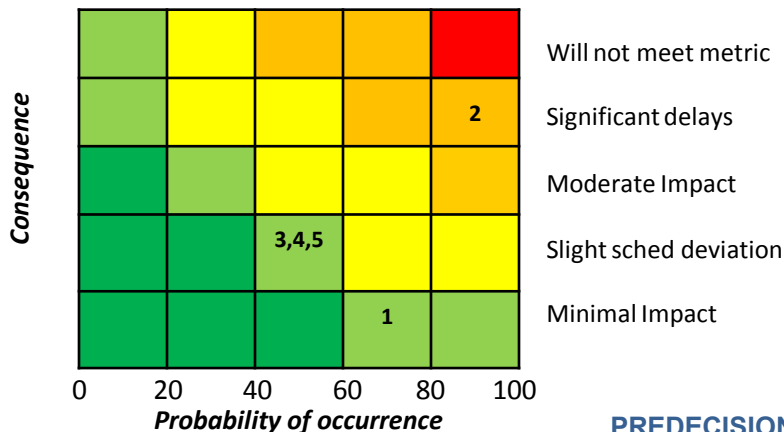
PREDECISIONAL DRAFT INFORMATION

Weekly Report – August 12, 2011

- ① **VIIRS**
 - Began coding the VIIRS C-RDR generator application in ADL.
- ② **CrIS**
 - Developing code to write the CrIS C-RDR.
 - Delaying CrIS C-RDR development until CrIS code is available.
- ③ **ATMS**
 - Developing code to write the ATMS C-RDR.
- ④ **OMPS Nadir**
 - Finished and tested Ver0.1 OMPS C-RDR prototype
- ⑤ **System Infrastructure**
 - Completed analysis of data collected NCT4.
 - Discussed C-RDR Charter with CLASS. They will provide updated estimate.

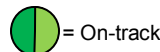
● No change ↑ Increasing Risk ↓ Decreasing Risk

Risk Matrix

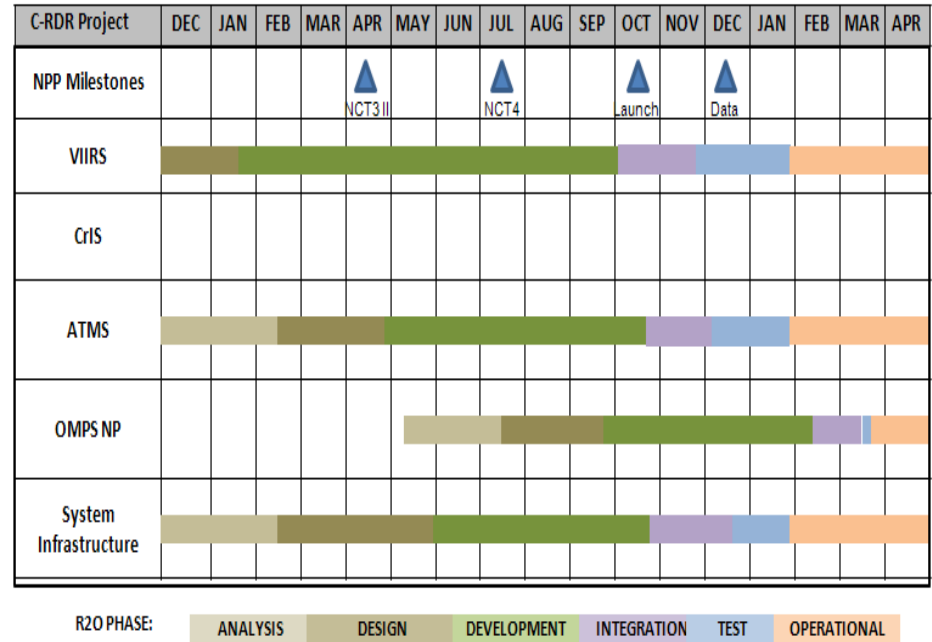


PREDECISIONAL DRAFT INFORMATION

8/12/2011



= On-track = Potential management action required = Management attention required



Risk and Mitigation

VIIRS, CrIS, ATMS, OMPS NP, System Infrastructure –

- Operational software is under maintenance, updated versions may affect C-RDR ported version.
- Contractor claims CrIS DR software is proprietary so cannot use for development. Working with old (2007) version of CrIS code. Delay till claim is resolved.

System Infrastructure –

- Availability of automated receipt of NPP RDRs from the CLASS system. Need to test ingest of RDRs from CLASS and develop an automated mechanism for re-requesting data.

Visible Infrared Imaging Radiometer Suite (VIIRS)

C-RDR Product: Raw sensor measurements with usage and provenance metadata in easily accessible netCDF4 format

GEOSS Societal Benefit: Climate, Water, Ecosystems, Agriculture, Biodiversity, Energy

Project Status

- **Obtained and built the full release of ADL 3.0. Updated scripts for installation for C-RDR computer in Boulder.**
- Working on framework to use in ADL for support data files.
- Installed the new release at Boulder site for C-RDR supporting data files development.
- Coding the VIIRS C-RDR generator application in ADL.
- Updated the VIIRS Product Specification.
- Defined pre-processing for VIIRS supporting data files that are useable with ADL.
- Developing software to create the C-RDR, reusing the ADL.
- Completed release of netCDF4 file creation toolset.

Next Action / Milestone

- Development complete for the VIIRS C-RDR



Project Risks

- Complexity of the NPP/JPSS RDRs and operational software
- Operational software is under maintenance, updated versions may affect C-RDR ported version

Project Schedule

ID	Task Name	Status	Start	Stop	FY11 Q3			FY11 Q4			FY12 Q1			FY12 Q2			FY12 Q3		
					Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1	Analysis	Completed	10/23/2009	5/4/2010															
2	Design	Completed	5/6/2010	1/5/2011															
3	Development	30.00%	1/6/2011	10/4/2011															
3a	Develop VIIRS processing component	60.00%	1/6/2011	8/1/2011															
3b	Test VIIRS processing component		8/9/2011	10/4/2011															
4	Integration		10/12/2011	11/23/2011															
5	Test		8/24/2011	1/27/2012															
5a	Draft test procedures		8/24/2011	9/6/2011															
5b	Dry Runs/some with launch data		12/23/2011	1/26/2012															
5c	System Acceptance Test		1/27/2012	1/27/2012															
6	Operational		1/28/2012																

PREDECISIONAL DRAFT INFORMATION

Cross-track Infrared Sounder (CrIS)

C-RDR Product: Raw sensor measurements with usage and provenance metadata in easily accessible netCDF4 format

GEOSS Societal Benefit: Climate, Water, Energy

Project Status

- Wrote and tested CrIS C-RDR processing code to create proxy interferogram data-filled C-RDRs from input RDRs
- Developing and debugging code to create data structures for writing the C-RDR.
- Creating a MATLAB reader for the C-RDR to provide easy access.
- Evaluating processing of C-RDR with MATLAB and IDL
- Defining the netCDF4 structure for the C-RDR and developing software for writing the C-RDR
- CrIS IDPS software changes are not available to contractors. This affects C-RDR and ADL development and Cal/Val teams, SDS.
- Ported operational algorithms (Space Dynamics Lab at Utah State)

Next Action / Milestone

- Delay until the CrIS SDR code is releasable. JPSS Program Office is working to resolve proprietary claims with BOMEM.
- Complete definition of CrIS C-RDR



Project Risks

- CrIS science algorithms not available to contractors: C-RDR team, cal/val teams, ADL developer cannot get CrIS SDR code. Our current version of CrIS code is from 2007.
- NPP Launch Date: October 25, 2011
- Complexity of the NPP/JPSS RDRs and operational software
- Operational software is under maintenance, updated versions may affect C-RDR ported version. Mitigated by using ADL.

Project Schedule

ID	Task Name	Status	Start	Stop	FY11 Q2			FY11 Q3			FY11 Q4			FY12 Q1			FY12 Q2		
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	Analysis	Completed	8/16/2010																
2	Design	90.00%	11/26/2010																
3	Development		2/16/2011																
3a	Develop CrIS processing component	60.00%	2/16/2011																
3b	Test CrIS processing component		5/12/2011																
4	Integration		7/25/2011																
5	Test		9/1/2011																
5a	Dry Runs/some with launch data		9/1/2011																
5b	System Acceptance Test		12/12/2011																
6	Operational		12/20/2011																

DELAYED

Advanced Technology Microwave Sounder (ATMS)

C-RDR Product: Raw sensor measurements with usage and provenance metadata in easily accessible netCDF4 format

GEOSS Societal Benefit: Climate, Water, Energy

Project Status

- **Working with ADL 3.0 for integration of C-RDR routines.**
- Developing code to write the C-RDR.
- Completed first draft of C-RDR contents.
- Defining the C-RDR format, contents, and metadata
- Identifying code and data structures required for C-RDR processing.
- Verified processing of ATMS algorithms
- IDPS ATMS algorithm executing in ADL at NCDC
- Evaluating IDPS algorithms in ADL
- Obtained ported operational algorithms (Space Dynamics Lab at Utah State)

Next Action / Milestone

- Develop the code to produce the C-RDR



Project Risks

- Complexity of the NPP/JPSS RDRs and operational software
- Operational software is under maintenance, updated versions may affect C-RDR ported version
- Developer shares time working NPP and CLASS issues.

Project Schedule

ID	Task Name	Status	Start	Stop	FY11 Q3			FY11 Q4			FY12 Q1			FY12 Q2			FY12 Q3		
					Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1	Analysis	Complete	10/29/2010	2/10/2011															
2	Design	90.00%	2/11/2011	4/29/2011															
3	Development	20.00%	5/2/2011	10/28/2011															
3a	Develop ATMS processing component	50.00%	5/2/2011	8/24/2011															
3b	Test ATMS processing component		8/18/2011	11/4/2011															
4	Integration		11/5/2011	12/20/2011															
5	Test		12/23/2011	1/27/2012															
5a	Dry Runs/some with launch data		12/23/2011	1/26/2012															
5b	System Acceptance Test		1/27/2012	1/27/2012															
6	Operational		1/28/2012																

PREDECISIONAL DRAFT INFORMATION

Ozone Mapping Profile Suite (OMPS) Nadir

C-RDR Product: Raw sensor measurements with usage and provenance metadata in easily accessible netCDF4 format

GEOSS Societal Benefit: Climate, Energy

Project Status

- **Developing code to initialize the C-RDR file and fill in the C-RDR values.**
- Received comments and created second draft of OMPS Nadir C-RDR prototype.
- Analyzing IDPS algorithms and documents to define the OMPS Nadir C-RDR structure.
- OMPS Nadir algorithms will be released in ADL 3.0.
- Analyzing the IDPS software for the OMPS Nadir SDR for the use in developing the C-RDR
- Updating the schedule for the OMPS Nadir C-RDR

Next Action / Milestone

- Define the C-RDR format, contents, and metadata



Project Risks

- Complexity of the NPP/JPSS RDRs and operational software
- Operational software is under maintenance, updated versions may affect C-RDR ported version

Project Schedule

ID	Task Name	Status	Start	Stop	FY11 Q3			FY11 Q4			FY12 Q1			FY12 Q2			FY12 Q3		
					Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1	Analysis	80.00%	5/23/2011	7/12/2011															
2	Design	30.00%	7/13/2011	9/28/2011															
3	Development		9/29/2011	2/7/2012															
3a	Develop OMPS NP processing component		9/29/2011	12/19/2011															
3b	Test OMPS NP processing component		12/20/2011	2/7/2012															
4	Integration		2/8/2012	3/6/2012															
5	Test		3/7/2012	3/14/2012															
6	Operational		3/15/2012																

PREDECISIONAL DRAFT INFORMATION

C-RDR System Infrastructure

C-RDR Product: Infrastructure to automate the production of the C-RDRs.

GEOSS Societal Benefit: None

Project Status

- Analyzed data received from CLASS and SIPGenSys performance. Defining granule validation for processing.
- Receiving RDRs from CLASS via subscription during NCT4.
- Completed throughput testing for SIPGenSys.
- Successfully transferred files from FTP Farm to Blade Center and ingested for RDR throughput test.
- Creating database tables and access procedures for the database to handle configuration files.
- Setting up configuration files and software for the ingest test.
- Developing an ingest test using the aggregated RDRs.
- Working on database infrastructure design.
- Analyzing existing ingest and dissemination capabilities.

Next Action / Milestone

- Perform the throughput test.



Project Risks

- Ability of CLASS to provide full stream of RDRs and ability to ingest stream of C-RDRs. **Ability of CLASS to provide RDRs will be tested during NCT4.**
- Need to develop an automated re-request mechanism for CLASS.

Project Schedule

ID	Task Name	Status	Start	Stop	FY11 Q3			FY11 Q4			FY12 Q1			FY12 Q2			FY12 Q3		
					Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1	Analysis	Completed	9/29/2010	4/22/2011															
2	Design	70.00%	4/25/2011	7/8/2011															
3	Development		5/31/2011	12/22/2011															
3a	Develop infrastructure	10.00%	5/31/2011	9/26/2011															
3b	Test infrastructure	65.00%	9/27/2011	11/8/2011															
4	Integration		10/26/2011	12/22/2011															
5	Test		12/23/2011	1/27/2012															
5a	Dry Runs/some with launch data		12/23/2011	1/26/2012															
5b	System Acceptance Test		1/27/2012	1/27/2012															
6	Operational		1/28/2012																

PREDECISIONAL DRAFT INFORMATION